

# Emerging Marine Diseases, Regulating Functions, and Governance Implications

2<sup>nd</sup> International Ocean Health Symposium, 29-31 August 2022, Kiel, Germany

Hosted by: Kiel Marine Science at Kiel University & GEOMAR Helmholtz Centre for Ocean Research Kiel;  
[Symposiums website](#)

## SCIENTIFIC PROGRAMME

**MON, 29.08.2022**

**Travel**

Afternoon Site events - Traverse the Kiel Fjord by ferry and take a tour at GEOMAR East shore  
- Meet Kiel marine scientists, visit the Kiel Outdoor Benthocosms

18:00 – 21:00 h Ice breaker at **Seebar Bellevue**

**TUE, 30.08.2022**

**Steigenberger Hotel**

09:00 – 10:30 h

**Opening Session**

Moderated by **Thorsten Reusch** (GEOMAR & Kiel University, Germany)

09:05 – 09:15 h

Welcome

**Nele Matz-Lück** (Vice president Kiel University)

09:15 – 09:45 h

Keynote

**Kevin Lafferty** (US Geological Survey & UC Santa Barbara, USA)

*“Are marine diseases bad or good?”*

09:45 – 09:55 h

Discussion

09:55 – 10:30 h

Coffee break

10:30 – 12:15 h

**Session 1: Emerging marine diseases**

Chair: **Ute Hentschel Humeida** (GEOMAR & Kiel University, Germany)

Guiding questions:

- Which are the emerging marine pathogens/parasites?
- Are infection processes in the ocean different from those of terrestrial organisms?
- What are the mechanistic underpinnings of marine disease?
- What are the impacts on organismal function?

10:30 – 10:45 h

Introduction into field by discussion chair

10:45 – 11:05 h

**Forest Rohwer** (San Diego State University, USA)

*“Microbialization and coral reef decline”*

11:05 – 11:15 h

Discussion

11:15 – 11:35 h

**Alicia Bruzos** (The Francis Crick Institute, UK & Universidade de Santiago de Compostela, Spain) *“Clonal evolution of a marine transmissible cancer”*

11:35 – 11:45 h

Discussion

11:45 – 12:05 h

**Claire Gachon** (SAMS, UK & MNHN, France)

*“Pathogens, physiology of disease, and disease management in algal aquaculture”*

12:05 – 12:15 h

Discussion

continued

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|-----------------|--|
| 12:15 – 13:45 h | Lunch  |
| 13:45 – 13:55 h | <b>Opening afternoon session: Katja Matthes</b> (Director of GEOMAR)   |
| 13:50 – 15:35 h | <b>Session 2: Marine epidemiology, triggers, and tipping-points</b><br>Chair: <b>Ruth Schmitz-Streit</b> (Kiel University, Germany)  |
|                 | Guiding questions:<br><ul style="list-style-type: none"> <li>- What is the current understanding of marine disease dynamics (epidemiology) compared to land?</li> <li>- How can we use the sediment record to understand past disease dynamics?</li> <li>- How can we explore and visualise health and disease related processes using a digital twin ocean approach?</li> </ul> |
| 13:55 – 14:10 h | Introduction into field by discussion chair  |
| 14:00 – 14:30 h | <b>Assaf Vardi</b> (Weizmann Institute, Israel)<br><i>“Partners in crime – synergy of viruses and bacteria during algal blooms in the ocean”</i>   |
| 14:30 – 14:40 h | Discussion   |
| 14:40 – 15:00 h | <b>Isabelle Arzul</b> (IFREMER, France)<br><i>“Factors triggering main bivalve diseases in Europe”</i>   |
| 15:00 – 15:10 h | Discussion   |
| 15:10 – 15:30 h | <b>Arne Biastoch</b> (GEOMAR & Kiel University, Germany)<br><i>“On the power of biophysical modelling to explain biological dispersal“</i>   |
| 15:30 – 15:40 h | Discussion   |
| 15:40 – 16:15 h | Coffee break   |
| 16:15 – 20:30 h | <b>Poster session</b> , networking, buffet (18:30 h)   |

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**WED, 31.08.2022      Steigenberger Hotel**

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| 09:00 – 11:00 h | <b>Session 3: Marine disease between mass mortality and essential regulation</b><br>Chair: <b>Thorsten Reusch</b> (GEOMAR & Kiel University, Germany)  |
|                 | Guiding questions:<br><ul style="list-style-type: none"> <li>- What are advances in the understanding of how disease regulates ecosystems?</li> <li>- How can we distinguish among key regulating and detrimental functions of (emerging) marine disease?</li> <li>- How much disease does a healthy ocean need?</li> <li>- What is the relationship among pathogen / parasite and the biodiversity of free-living species?</li> </ul> |
| 09:00 – 09:15 h | Introduction into field by discussion chair  |
| 09:15 – 09:35 h | <b>David Thieltges</b> (NIOZ, The Netherlands)<br><i>“Parasites as ecological players in marine ecosystems”</i>  |
| 09:35 – 09:45 h | Discussion   |
| 09:45 – 10:05 h | <b>Lauren Schiebelhut</b> (UC Merced, USA)<br><i>“Genomic consequences, considerations, and conservation opportunities following mass mortalities in sea stars”</i>  |
| 10:05 – 10:15 h | Discussion   |
| 10:15 – 10:35 h | <b>Ursula Siebert</b> (University of Veterinary Medicine, Germany)<br><i>“Infectious diseases in marine mammals: Do impacts of anthropogenic activities have a boomerang effect on human health?”</i>  |
| 10:35 – 10:45 h | Discussion   |

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10:45 – 10:55 h Group picture

10:45 – 12:45 h Coffee break & Brunch

12:45 – 14:30 h **Session 4: Governance of marine diseases**

Chair: **Marie-Catherine Riekhof** (KMS & CeOS, Kiel University, Germany)

Guiding questions:

- What are direct and indirect links between ocean health and disease and human well-being?
- What are possible roles of humans in fostering marine disease outbreaks (e.g. pollution, destroying biodiversity) and in curing them?
- How can management account for the “double role” of marine disease (mass mortality versus regulating function)?
- How can management across time, space and national borders effectively be implemented?

12:45 – 13:00 h Introduction into field by discussion chair

13:00 – 13:20 h **Christina Pettan-Brewer** (University of Washington, USA & ECOHA, Brasil & OHLAIC)  
*“One Ocean, One Health in Latin America: How can we define and disseminate a modern historical perspective of the concept?”*

13:20 – 13:30 h Discussion

13:30 – 13:50 h **Raquel Peixoto** (KAUST, Saudi Arabia)  
*“Customized medicine for Corals: Promise, Challenges and Next Steps”*

13:50 – 14:00 h Discussion

14:00 – 14:20 h **Lone Grønbaek Jørgensen** (SDU, Denmark)  
*“Game theory and fisheries management: The challenges of regulation”*

14:20 – 14:30 h Discussion

14:30 – 15:15 h Coffee break

15:15 – 16:00 h **Panel discussion** including international steering group members moderated by **Martin Visbeck** (GEOMAR & Kiel University, Germany)

Panelists: **NN**

Guiding question:

- Which research agenda do we need for the next decade to study ocean health and disease?

16:00 – 17:00 h Wrap-up with coffee

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**THU, 01.09.2022 Steigenberger Hotel**

Synthesis groups (invitation only)

Visit at [ARENA2](#) Visualization Laboratory at GEOMAR (optional)